



## Andrenidae (Hymenoptera, Apoidea) of Korea

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**Abstract** A total of 50 species under two genera in the family Andrenidae are listed from Korea based on the examination of specimens in several depositories and literatural review. *Andrena kyusani* Kim & Kim, 1989 is found to be a junior synonym of *A. longitibialis* Hirachima, 1961.

**Key words** checklist, new synonym, Korean fauna

### INTRODUCTION

The family Andrenidae consists of three subfamilies Andreninae, Panurginae, and Oxaeinae (Michener, 2000). Some members of the first two subfamilies occur in the Korean Peninsula. Among them, Andreninae is the biggest, and most members of the subfamily belong to the genus *Andrena*. At present, about 1,200 species of *Andrena* are known to occur in the world, and most of them have been allocated to approximately 95 subgenera.

The first record of the andrenid bees in Korea was *Andrena thoracica* Fabricius by Radszkowski (1890). Yasumatsu (1941) reported 75 species and subspecies and made a check list of the genus *Andrena* from China, Japan, Korea, Mongolia, and the Far East of Russia. Later, some other Korean andrenid bees were added to the list by Hirashima (1952a, b, 1957b), Kim (1970, 1980), Kim and Kim (1983a, b, 1989a), Kim *et al.* (1990), Tadauchi & Lee (1992), and Tadauchi *et al.* (1997).

For a review of the listed species, we examined the collections of Seoul National University, National Institute of Agricultural Science and Technology of the Rural Development Administration, Suncheon National University, and Jeju Folklore and Natural History Museum, preserved specimens identified by Dr. Tadauchi, and Korea University, preserved specimens by Kim (1970, 1980), Kim and Kim (1983a, b, 1989a) and Kim *et al.* (1990). Through this study, *Andrena kyusani* Kim and Kim is found to be a junior synonym of *Andrena longitibialis* Hirashima, and *Andrena prostomias* Perez is a misidentification of *A. dentata* Smith.

Some additions and corrections are made in the present checklist of Andrenidae since the previous publication in 1994 (Check List of Insects from Korea by ESK & KSAE). This checklist is mainly based on the examination of specimens in several depositories and contains the previous records except for the confirmed misidentification of the obvious records. Information from published and unpublished literatures were also consulted. The first description articles and mainly Korean records of the listed species were given in the synonymy list.

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As a result, a total of 50 species under two genera of Andrenidae are listed from Korea.

### Superfamily Apoidea 꿀벌上科

### Family Andrenidae 애꽃벌科

### Subfamily Andreninae 애꽃벌亞科

#### Genus *Andrena* Fabricius, 1775 애꽃벌屬

*Andrena* Fabricius, 1775, Syst. Ent., p. 376. Type-species: *Apis helvola* Linnaeus, 1758, by designation of Viereck, 1912, Proc. U. S. Nat. Mus. 37: 613.

*Anthrena* Illiger, 1801, Mag. Insect. 1: 127. unjustified emendation of *Andrena* Fabricius, 1775.

*Anthocharessa* Gistel, 1850, Isis (Encycl. Ztschr.), 6: 82. Type-species: *Apis helvola* Linnaeus, 1758. unjustified replacement for *Andrena* Fabricius, 1775.

#### Subgenus *Andrena* (s. str.)

##### *Andrena* (*Andrena*) *benefica* Hirashima, 1962 작은애벌꽃

*Andrena* (*Andrena*) *benefica* Hirashima, 1962, J. Fac. Agr., Kyushu Univ., 12(2): 151 (Japan); Tadauchi *et al.*, 1987: 45–46 (Korea); Tadauchi *et al.*, 1997: 188–9 (Korea: Jeju-do).

*Andrena* (*Andrena*) *binifica* [sic] : Kim & Kim, 1983: 5 (first Korean record); ESK & KSAE, 1994: 266 (Korea).

*Andrena* (*Andrena*) *benefica* [sic] : Kim, 1996: 209 (Korea).

*Distribution.* Korea (incl. Jeju-do), Japan, China, and Russian Far East.

##### *Andrena* (*Andrena*) *brevihirtiscopa* Hirashima, 1962 작은술애꽃벌

*Andrena* (*Andrena*) *brevihirtiscopa* Hirashima, 1962, J. Fac. Agr., Kyushu Univ., 12: 124 (Japan); Kim & Kim, 1983b: 71 (first Korean record); Tadauchi & Lee, 1992: 48 (Korea); Kim, 1996: 209 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (incl. Jeju-do), Japan, China, and Russian Far East.

##### *Andrena* (*Andrena*) *dolharubang* Tadauchi et Xu, 1997 제주애꽃벌 (신칭)

*Andrena* (*Andrena*) *dolharubang* Tadauchi et Xu, 1997, in Tadauchi *et al.*, Esakia, 37: 189–190 (Jeju-do).

*Distribution.* Korea (Jeju-do).

*Notes.* This species was described with a female from Jeju-do, Korea by Tadauchi *et al.* (1997), but we have not been able to collect it yet.

##### *Andrena* (*Andrena*) *hondoica* Hirashima, 1962 혼도에꽃벌

*Andrena* (*Andrena*) *hondoica* Hirashima, 1962, J. Fac. Agr., Kyushu Univ., 12: 144 (Japan); ESK & KSAE, 1994: 266 (first Korean record); Kim, 1996: 209 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea and Japan.

*Notes.* This species was first recorded from Korea only in the list by ESK & KSAE (1994).

##### *Andrena* (*Andrena*) *ishiharai* Hirashima, 1953 이시하라애꽃벌

*Andrena* (*Andrena*) *ishiharai* Hirashima, 1953, Trans. Shikoku Ent. Soc., 3: 33 (Japan); Kim & Kim, 1983b: 70 (first Korean record); Tadauchi & Lee, 1992: 48 (Jeju-do); ESK & KSAE, 1994: 266 (Korea); Kim, 1996:

210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (incl. Jeju), Japan, and Russian Far East.

***Andrena (Andrena) longitibialis* Hirashima, 1962 긴다리에꽃벌 (규산에꽃벌)**

*Andrena (Andrena) longitibialis* Hirashima, 1962. J. Fac. Agr., Kyushu Univ., 12: 139 (Japan); Tadauchi & Lee, 1992: 49 (Korea); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (in list).

*Andrena (Andrena) kyusani* Kim & Kim, 1989a, Korean J. Ent., 19(3): 200 (first Korean record); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list) (Syn. nov.).

*Distribution.* Korea (Central, South) and Japan.

*Notes.* This species was first recorded from Korea by Kim & Kim (1989a) as *A. kyusani*. The type specimens of *Andrena kyusani* deposited in Korea University were compared with specimens of *A. longitibialis*. We recognized that the former is a new synonym of the later.

***Andrena (Andrena) mikado* Strand et Yasumatsu, 1938 미카도에꽃벌**

*Andrena (Melandrena) mikado* Strand et Yasumatsu, 1938. Mushi, 11: 67 (Japan); Kim, 1970: 824 (first Korean record).

*Andrena mikado*: Kim, 1970: 660 (first Korean record).

*Andrena (Andrena) mikado*: Tadauchi & Lee, 1992: 48 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (incl. Jeju) and Japan.

***Andrena (Andrena) sakagamii* Tadauchi, Hirashima & Matsumura, 1987 사카가미에꽃벌**

*Andrena (Andrena) sakagamii* Tadauchi, Hirashima & Matsumura, 1987, J. Fac. Agr., Kyushu Univ., 31: 29. Tadauchi & Lee, 1992: 48 (first Korean record); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea, Japan, and Russian Far East.

**Subgenus *Calomelissa* Hirashima et LaBerge, 1963**

*Calomelissa* Hirashima et LaBerge, 1963, J. Fac. Agr., Kyushu Univ., 12: 241. Type-species: *Andrena prostomias* Perez, 1905, by original designation.

***Andrena (Calomelissa) tsukubana* Hirashima, 1957 박하에꽃벌**

*Andrena tsukubana* Hirashima, 1957, Mushi, 30(9): 55 (Japan).

*Andrena (Calomelissa) tsukubana*: Kim & Kim, 1983a: 6 (first Korean record); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South) and Japan.

**Subgenus *Chlorandrena* Perez, 1890**

*Chlorandrena* Perez, 1890, Actes de la Societe Lenneenne de Bordeaux 44: 172. Type-species: *Andrena humilis* Imhoff, 1832 by subsequent designation of Hedicke, 1933: 211.

***Andrena (Chlorandrena) knuthi* Alfken, 1900 크누드에꽃벌**

*Andrena knuthi* Alfken, 1900, Ent. Nachr., 26: 178 (Japan); Kim, 1970: 661, 825 (Korea).

*Andrena (Chrysandrena) knuthi*: Hirashima, 1952: 41 (first Korean record); Kim, 1996: 211 (Korea).

*Andrena (Chlorandrena) knuthi*: ESK & KSAE, 1994: 266 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), Japan, and China.

*Notes.* The records of this species from Korea were likely to be suspected as ones of *A. okinawana*.

***Andrena (Chlorandrena) knuthiformis* Hirashima, 1952 크누드형애꽃벌 (신칭)**

*Andrena (Chrysandrena) knuthiformis* Hirashima, 1952, Mushi, 23(5): 43 (China, Korea); Kim, 1996: 211 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), and Northern China.

***Andrena (Chlorandrena) okinawana* Matsumura et Uchida, 1926 남방애꽃벌 (신칭)**

*Andrena okianwana* Matsumura et Uchida, 1926, Ins. Mats., 1: 69 (Japan);

*Andrena (Chlorandrena) knuthi okinawana*: Hirashima, 1963b: 262.

*Andrena (Chlorandrena) okinawana*: Tadauchi & Lee, 1992: 54 (first Korean record); Kim, 1996: 210 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South, Jeju), Japan, and China.

***Andrena (Chlorandrena) taraxaci orienticola* Stand, 1915 동양애꽃벌 (신칭)**

*Andrena humilis* var. *orienticola* Strand, 1915, Ent. Mitt., 4: 72 (China).

*Andrena (Chlorandrena) taraxaci chikuzenensis* Hirashima, 1957, Mushi, 30: 52 (Japan); Tadauchi *et al.*, 1997: 198 (first Korean record, Jeju). [Syn. by Xu & Tadauchi, 1998]

*Andrena (Chlorandrena) taraxaci orienticola*: Warncke, 1967, Eos, 43: 204, 295; Xu & Tadauchi, 1998: 97 (Korea).

*Distribution.* Korea (incl. Jeju), Japan, and China.

**Subgenus *Cnemidandrena* Hedicke, 1933**

*Cnemidandrena* Hedicke, 1933, Mitt. zool. Mus. Berlin, 19: 213. Type-species: *Mellita nigriceps* Kirby, 1802, by original designation.

***Andrena (Cnemidandrena) denticulata seneciorum* Hirashima, 1964 히라시마애꽃벌**

*Andrena (Cnemidandrena) seneciorum* Hirashima, 1964, J. Fac. Agr., Kyushu Univ. 13(1): 40–43 (Japan); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 211 (Korea).

*Andrena seneciorum*: Kim, 1970: 661–662, 825 (first Korean record).

*Andrena (Cnemidandrena) denticulata seneciorum*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South), Japan, China, and Russian Far East.

**Subgenus *Euandrena* Hedicke, 1933**

*Euandrena* Hedicke, 1933, Mitt. zool. Mus. Berlin, 19: 212–213. Type-species: *Andrena bicolor* Fabricius, 1775, by original designation.

***Andrena (Euandrena) plumosa* Kim et Kim, 1989 털애꽃벌**

*Andrena (Euandrena) plumosa* Kim & Kim, 1989a, Korean J. Ent., 19(3): 200–201 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 211 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South).

***Andrena (Euandrena) ruficrus rabicrus* Hirashima, 1957 붉은다리아꽃벌 (개칭)**

*Andrena (Euandrena) ruficrus rabicrus* Hirashima, 1957, Mushi, 30: 50 (Japan); Tadauchi & Lee, 1992: 50

(first Korean record); Kim, 1996: 211 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (incl., Jeju), Japan, and China.

***Andrena (Euandrena) luridiloma* Strand, 1915 작은털애꽃벌 (신청)**

*Andrena luridiloma* Strand, 1915, Et. Mitt., 4: 72–73 (China).

*Ansrena (Euandrena) stellaria* Hirashima, 1964, J. Fac. Agr., Kyushu Univ., 13: 49 (Japan); Tadauchi & Lee, 1992: 49 (first Korean record); Kim, 1996: 211 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), Japan, and China.

**Subgenus *Holandrena* Perez, 1890**

*Holandrena* Perez, 1890, Actes de la Societe Lenneenne de Bordeaux 44: 176. Type-species: *Melitta labialis* Kirby, 1802, by subsequent designation of Hedicke, 1933: 214.

***Andrena (Holandrena) mediocalens* Cockerell, 1931 꼭케렐애꽃벌**

*Andrena mediocalens* Cockerell, 1931, Amer. Mus. Novitate: 11.

*Andrena (Gymnandrena) mediocalens* : Kim & Kim, 1983a: 6 (first Korean record); Kim *et al.*, 1990: 3–4 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea).

*Andrena (Holandrena) mediocalens*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), and China.

***Andrena (Holandrena) valeriana* Hirashima, 1957 발레리아애꽃벌**

*Andrena (Holandrena) valeriana* Hirashima, 1957, Mushi, 30(9): 56 (Japan); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Andrena valeriana*: Kim, 1970: 662, 825 (first Korean record).

*Distribution.* Korea (Central), Japan, China, and Russian Far East.

*Note.* This species was first recorded from Korean peninsula by Kim (1970), however, first author could not find any specimen of *A. valeriana* in Korea university except for the misidentified specimens as this.

**Subgenus *Hoplandrena* Perez, 1890**

*Hoplandrena* Perez, 1890, Actes de la Societe Lenneenne de Bordeaux 44: 170. Type-species: *Melitta trimmerana* Kirby, 1802, by subsequent designation of Hedicke, 1933: 214.

***Andrena (Hoplandrena) dentata* Smith, 1879 가시에꽃벌**

*Andrena dentata* Smith, 1879, Descr. New Spec. Hym., 51 (Japan); Kim, 1970: 659, 824 (first Korean record).

*Andrena (Hoplandrena) dentata* : Tadauchi & Lee, 1992: 49 (Jeju); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea); Tadauchi *et al.*, 1997: 190 (Korea: Jeju).

*Distribution.* Korea (incl. Jeju), Japan, China, and Russian Far East.

*Notes.* This species was first recorded from Korean peninsula by Kim (1970). This is a common species in Korea, and most of the specimens identified as *A. pruniphora* in Korea were *A. dentata*.

***Andrena (Hoplandrena) miyamotoi* Hirashima, 1964 미야모도애꽃벌**

*Andrena (Hoplandrena) miyamotoi* Hirashima, 1964, J. Fac. Agr., Kyushu Univ., 13: 87 (Japan); Kim & Kim, 1983b: 71 (first Korean record); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), Japan, and Russian Far East.

***Andrena (Hoplandrena) nudigastroides* Yasumatsu, 1935 사과애꽃벌**

*Andrena (Chlorandrena) nudigastroides* Yasumatsu, 1935, Insects Jehol (3) 7: 40 (China).

*Andrena pruniphora* Hirashima, 1964, J. Fac. Agr., Kyushu Univ., 13: 93; Kim, 1970: 661, 825 (first Korean record).

*Andrena (Hoplandrena) pruniphora*: ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), Japan, and China.

*Notes.* This species is rare in Korea. According to re-examination of specimens identified as *A. pruniphora* in Korea University, most of them were *A. dentata*. Previous records by Kim (1970) and Kim (1996) were likely to be misidentification of *A. dentata*.

***Andrena (Hoplandrena) rosae alfkeni* Friese, 1914 앵꽃벌**

*Andrena alfkeni* Fiese, 1914, Stett. ent. Ztg., 75: 228 (Siberia).

*Andrena florea sachalinensis* Yasumatsu, 1939, Ins. Mats., 13(2/3): 66–8 (Saghalien); Kim, 1970: 658, 824 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 215 (Korea).

*Andrena (Hoplandrena) rosae alfkeni*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (North, Central), Japan, China, and Russian Far East.

*Notes.* This species was first recorded from Korean peninsula by Kim (1970), however, no specimens were found in Korea University. Authors examined a male specimen collected in Mt. Odaesan.

**Subgenus *Lepidandrena* Hedicke, 1933**

*Lepidandrena* Hedicke, 1933, Mitt. zool. Mus. Berlin, 19: 215. Type-species: *Andrena curvungula* Thomson, 1870, by original designation.

***Andrena (Lepidandrena) chengtehensis* Yasumatsu, 1935 만주애꽃벌 (신칭)**

*Andrena (Poecilandrena) chengtehensis* Yasumatsu, 1935, Insects Jehol, 8: 38 (Manchuria).

*Andrena (Lepidandrena) lebedevi* Popov, 1940. Trav. Inst. Zool. Acad. Sci. URSS, 6: (China) (Syn. by Tadauchi *et al.*, 1997)

*Andrena (Lepidandrena) chengtehensis*: Tadauchi *et al.*, 1997: 198 (first Korean record).

*Distribution.* Korea (Central, Jeju), and China.

*Note.* According to examination of a female, we added this species into fauna of Jeju in this study.

**Subgenus *Leucandrena* Hedicke, 1933**

*Leucandrena* Hedicke, 1933, Mitt. zool. Mus. Berlin, 19: 215. Type-species: *Melitta barbilabris* Kirby, 1802 (= *Apis sericea* Christ, 1791, *nec* Förster, 1771), by original designation.

***Andrena (Leucandrena) delicatula* Cockerell, 1818 긴솔애꽃벌 (코마애꽃벌) (개칭)**

*Andrena delicatula* Cockerell, 1818, Ann. Mag. nat. Hist., (9), 2: 481 (China).

*Andrena (Simandrena) koma* Hirashima, 1952, Mushi, 24: 32–33 (Korea); Kim, 1970: 824 (Korea); Tadauchi & Lee, 1992: 51 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 214 (Korea). (Syn. by Xu & Tadauchi, 1997).

*Andrena (Leucandrena) delicatula*: Xu & Tadauchi, 1997: 180–181 (Korea); Tadauchi *et al.*, 1997: 191 (Jeju).

*Distribution.* Korea (incl. Jeju), and China.

**Subgenus *Melandrena*, Perez, 1890**

*Melandrena*, Perez, 1890, Actes de la Societe Linnéenne de Bordeaux 44: 170. Type-species: *Apis thoracica* Fabricius, 1775, by subsequent designation of Michener, 1997: 36.

*Gymnandrena* Hedicke, 1933, Mitt. zool. Mus. Berlin 19: 212. Type-species: *Apis thoracica* Fabricius, 1775 by original designation.

***Andrena (Melandrena) crassepunctata* Cockerell, 1931 살쥍곰보애꽃벌**

*Andrena crassepunctata* Cockerell, 1931, Amer. Mus. Nov., 446: 10 (China); Kim, 1970: 659 (first Korean Record).

*Andrena (Gymnandrena) crassepunctata*: Hirashima, 1957: 63 (first Korean record).

*Andrena (Gymnandrena) crassepunctata* [sic]: Kim *et al.*, 1990: 2 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 211 (Korea).

*Andrena (Melandrena) crassepunctata*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), and China (Manchuria).

***Andrena (Melandrena) koreana* Hirashima, 1952 고려애꽃벌**

*Andrena (Gymnandrena) koreana* Hirashima, 1952, Mushi, 24: 29 (Korea); Hirashima, 1957: 64 (Korea); Kim, 1970: 659, 824 (Korea); Kim *et al.*, 1990: 3 (Korea, Jeju); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 211 (Korea).

*Andrena (Melandrena) koreana*: Tadauchi *et al.*, 1997: 192 (Jeju).

*Distribution.* Korea (incl. Jeju), and China.

***Andrena (Melandrena) parathoracica* Hirashima, 1957 홍가슴애꽃벌**

*Andrena (Gymnandrena) parathoracica* Hirashima, 1957, Mushi, 30(10): 63 (Japan); Kim *et al.*, 1990: 4 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 211 (Korea).

*Andrena parathoracica*: Kim, 1970: 660, 824 (first Korean record).

*Andrena (Melandrena) parathoracica*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (North?, Central, South), Japan, and Russian Far East.

***Andrena (Melandrena) sasakii* Cockerell, 1913 사사키애꽃벌**

*Andrena sasakii* Cockerell, 1913, Ann. Mag. nat. Hist. (8), 11: 189 (Japan).

*Andrena (Gymnandrena) sasakii*: Kim *et al.*, 1990: 4 (first Korean record); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea).

*Andrena (Melandrena) sasakii*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central), Japan, and China.

***Andrena (Melandrena) thoracica sinensis* Cockerell, 1910 중국애꽃벌**

*Andrena sinensis* Cockerell, 1910, Trans. Amer. ent. Soc., 36: 249 (China).

*Andrena thoracica*: Radoszkowski, 1890: 230 (first Korean record) (nec Fabricius).

*Andrena thoracica sinensis*: Yasumatsu, 1941: 281 (Korea); Kim, 1970: 658, 824 (Korea).

*Andrena (Gymnandrena) thoracica sinensis*: Hedicke, 1939: 337; Yasumatsu, 1946, : 20 (Korea); Hirashima, 1957: 62 (Korea); Kim *et al.*, 1990: 4-5 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 212 (Korea).

*Andrena (Melandrena) thoracica sinensis*: Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (North, Central), and Northern China.

*Note.* This species was described from Korean peninsula by Radoszkowski (1890) as *A. thoracica*.

**Subgenus *Micrandrena* Ashmead, 1899**

*Micrandrena* Ashmead, 1899, Trans. Amer. ent. Soc., 26: 89. Type-species: *Micrandrena pacifica* Ashmead, 1899 (= *Andrena melanochroa* Cockerell, 1889), by original designation.

***Andrena (Micrandrena) brassicae* Hirashima, 1957 유채애꽃벌 (신칭)**

*Andrena (Micrandrena) brassicae* Hirashima, 1957, Mushi, 30: 52 (Japan); Tadauchi & Lee, 1992: 53 (first Korean record); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South), Japan, and China.

***Andrena (Micrandrena) chirisana* Tadauchi, 1992 지리애꽃벌 (신칭)**

*Andrena (Micrandrena) chirisana* Tadauchi, 1992, in Tadauchi & Lee, Esakia, 32: 53 (Mt. Jirisan, Korea).

*Distribution.* Korea (South).

*Notes.* This species was described from Mt. Jirisan, southern part of Korean peninsula by Tadauchi & Lee (1992), but we have not able to collect them yet.

***Andrena (Micrandrena) hikosana* Hirashima, 1957 히코산애꽃벌**

*Andrena (Micrandrena) hikosana* Hirashima, 1957, Mushi, 30: 53 (Japan); Kim & Kim, 1983a: 7 (first Korean record); Tadauchi & Lee, 1992: 52 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 194 (Jeju).

*Distribution.* Korea (incl. Jeju), Japan, China, Russian Far East.

***Andrena (Micrandrena) kaguya* Hirashima, 1965 꼬마애꽃벌**

*Andrena (Micrandrena) kaguya* Hirashima, 1965, J. Fac. Agr., Kyushu Univ., 13: 467 (Japan); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).  
*Andrena (Micrandrena) brassicae* : Kim & Kim, 1983a: 7 (first Korean record). (nec Hirashima)

*Distribution.* Korea (Central), Japan, and China.

*Notes.* This species was first recorded from Korean peninsula as *A. brassicae* by Kim & Kim (1983a), however, Kim (1996) recognized it as misidentification of *A. kaguya* in her doctor thesis, 1985.

***Andrena (Micrandrena) komachi* Hirashima, 1965 탐라애꽃벌 (신칭)**

*Andrena (Micrandrena) komachi* Hirashima, 1965, J. Fac. Agr., Kyushu Univ., 13: 469 (Japan); Tadauchi *et al.*, 1997: 194–195 (first Korean record, Jeju).

*Distribution.* Korea (Incl. Jeju), Japan, and China.

***Andrena (Micrandrena) munakatai* Tadauchi, 1985 산오름애꽃벌 (신칭)**

*Andrena (Micrandrena) munakatai* Tadauchi, 1985, J. Fac. Agr., Kyushu Univ., 30: 70; Tadauchi & Lee, 1992: 53 (first Korean record); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 195 (Jeju).

*Distribution.* Korea (incl. Jeju), Japan, and China.



***Andrena (Micrandrena) sublevigata* Hirashima, 1966 해오름애꽃벌 (신칭)**

*Andrena (Micrandrena) sublevigata* Hirashima, 1966. J. Fac. Agr., Kyushu Univ., 14: 91, 95 (Japan); Tadauchi & Lee, 1992: 52 (first Korean record); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South), Japan, and China.

**Subgenus *Oreomelissa* Hirashima et Tadauchi, 1975**

*Oreomelissa* Hirashima et Tadauchi, 1975, J. Fac. Agr., Kyushu Univ., 19: 175–177. Type-species: *Andrena mitakensis* Hirashima, 1963, by original designation.

***Andrena (Oreomelissa) amurensis* Friese, 1922 금강애꽃벌 (新稱)**

*Andrena amurensis* Friese, 1922, Konowia, 1: 212 (Amur).

*Andrena (Oreomelissa) mitakensis* Hirashima & Tadauchi, 1975, J. Fac. Agr., Kyushu Univ., 19: 178 (in part, first Korean record).

*Andrena (Oreomelissa) amurensis*: Tadauchi *et al.*, 1997: 199–200 (N. Korea, Mt. Geumgansan).

*Distribution.* Korea (North, Central), China, and Russian Far East.

*Notes.* This species was first recorded from Korean peninsula by Hirashima & Tadauchi (1975) as *A. mitakensis* Hirashima, however, corrected by Tadauchi *et al.* (1997).

***Andrena (Oreomelissa) kamikochiana* Hirashima, 1963 산마루애꽃벌 (신칭)**

*Andrena (Calomelissa) kamikochiana* Hirashima, 1963, J. Fac. Agr., Kyushu Univ., 12: 251 (Japan).

*Andrena (Oreomelissa) kamikochiana*: Tadauchi *et al.*, 1997: 201 (first Korean record).

*Distribution.* Korea (North), Japan, and China.

**Subgenus *Plastandrena* Hedicke, 1933**

*Plastandrena* Hedicke, 1933, Mitt. Zool. Mus. Berlin, 19: 217–218. Type-species: *Melitta tibialis* Kirby, 1802, by original designation.

***Andrena (Plastandrena) magnipunctata* Kim et Kim, 1989 큰점애꽃벌**

*Andrena (Plastandrena) magnipunctata* Kim et Kim, 1989, Korean J. Ent., 19: 201 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 214 (Korea); Tadauchi *et al.*, 1997: 195–196 (Jeju).

*Distribution.* Korea (incl. Jeju), and China.

*Notes.* This species was described from Mt. Deokyusan, Korea by Kim & Kim (1989). The record from Jeju by Tadauchi *et al.* (1997) was likely to be misidentification with other species, according to description and figures, however, we could not examine the specimen used for description.

***Andrena (Plastandrena) transbaicalica* Popov, 1949 기마애꽃벌 (신칭)**

*Andrena (Plastandrena) transbaicalica* Popov, 1949, Ent. Rev. USSR., 30: 398 (Siberia); Tadauchi *et al.*, 1997: 200 (in list) (Korea).

*Andrena (Plastandrena) astragalina* Hirashima, 1957. Mushi, 30: 51 (Japan); Tadauchi & Lee, 1992: 56 (first Korean record).

*Distribution.* Korea (Central, South), Japan, China, and Russia (Siberia, Far East).

**Subgenus *Poecilandrena* Hedicke, 1933**

Subgenus *Poecilandrena* Hedicke, 1933, Mitt. Zool. Mus. Berlin, 19: 218. Type-species: *Andrena labiata* Fabricius, 1781, by original designation.

***Andrena (Poecilandrena) fukuokensis* Hirashima, 1952 구주에꽃벌**

*Andrena (Micrandrena) fukuokensis* Hirashima, 1952. Mushi, 23: 39 (Japan).

*Andrena (Poecilandrena) fukuokensis* : Kim & Kim, 1983a: 6 (first Korean record); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 214 (Korea); Tadauchi *et al.*, 1997: 196–197 (Jejudo).

*Distribution.* Korea (incl. Jejudo), Japan, China, and Russian Far East.

**Subgenus *Rhaphadrena* LaBerge, 1871**

*Rhaphadrena* LaBerge, 1971, Trans. Amer. ent. Soc., 97: 507. Type-species: *Andrena prima* Casad et Cockerell, 1896, by original designation.

***Andrena (Rhaphadrena) richardsi* Hirashima, 1965 리차드에꽃벌**

*Andrena richardsi* Hirashima, 1965. J. Fac. Agr., Kyushu Univ., 13: 482 (Japan); Kim, 1970: 825 (first Korean record).

*Andrena (Leucandrena) richardsi*: Tadauchi & Lee, 1992: 54 (Korea).

*Andrena (Notandrena) richardsi*: ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 213 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South), and Japan.

**Subgenus *Simandrena* Pérez, 1890**

*Simandrena* Pérez, 1890, Actes Soc. Linn. Bordeaux, 44: 174. Type-species: *Andrena propinqua* Schenck, 1853 (= *Melitta dorsata* Kirby, 1802), by subsequent designation of Hedicke, 1933, Mitt. Zool. Mus. Berlin, 19: 218.

***Andrena (Simandrena) kerriae* Hirashima, 1952 꼬마허리에꽃벌 (신칭)**

*Andrena (Simandrena) kerriae* Hirashima, 1965, J. Fac. Agr., Kyushu Univ., 13: 499 (Japan); Tadauchi & Lee, 1992: 51 (first Korean record); Tadauchi & Xu, 1995: 217 (Korea); Kim, 1996: 215 (Korea); Tadauchi *et al.*, 1997: 197 (Jejudo).

*Distribution.* Korea (South, Jejudo), Japan, China, and Russian Far East.

***Andrena (Simandrena) opacifovea* Hirashima, 1952 허리에꽃벌 (신칭)**

*Andrena (Simandrena) opacifovea* Hirashima, 1952, Mushi, 24: 31 (Japan).

*Andrena (Simandrena) opacifovea opacifovea*: Tadauchi & Lee, 1992: 51 (first Korean record); Kim, 1996: 214 (Korea).

*Distribution.* Korea (Central), and Japan.

*Note.* This species was first recorded from Korean peninsula by Tadauchi & Lee (1992), but Tadauchi *et al.* (1997) omitted it in Korean andrenid list.

***Andrena (Simandrena) yamato* Tadauchi et Hirashima, 1983 둥근허리에꽃벌**

*Andrena (Simandrena) yamato* Tadauchi et Hirashima, 1983, Esakia, 20: 83 (Japan); Tadauchi & Lee, 1992: 50 (Korea); Tadauchi & Xu, 1995: 210 (Korea); Kim, 1996: 214 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Andrena (Simandrena) opacifovea koreana* Kim & Kim, 1989, Korean J. Ent., 19: 202 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 214 (Korea).

*Distribution.* Korea (incl. Jejudo), Japan, China, and Russian Far East.

*Notes.* This species was described from South Korea by Kim & Kim (1989) as *A. opacifovea koreana*, and later this subspecies treated it as a junior synonym of this species by Tadauchi &

Lee (1992).

### Subgenus *Stenomelissa* Hirashima et LaBerge, 1965

*Stenomelissa* Hirashima et LaBerge, 1965, J. Fac. Agr., Kyushu Univ., 13: 500. Type-species: *Andrena halictoides* Smith, 1869, by original designation.

#### *Andrena (Stenomelissa) halictoides* Smith, 1869 긴얼굴애꽃벌

*Andrena halictoides* Smith, 1869, Entomologist, 4: 205 (Japan).

*Andrena (Stenomelissa) halictoides* : Kim & Kim, 1983a: 6 (first Korean record); Tadauchi & Lee, 1992: 55 (Korea); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 215 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (Central, South), Japan, China, and Russian Far East.

### Subgenus *Taeniandrena* Hedicke, 1933

*Taeniandrena* Hedicke, 1933, Mitt. Zool. Mus. Berlin, 19: 219. Type-species: *Melitta ovatula* Kirby, 1802, by original designation.

#### *Andrena (Taeniandrena) ezoensis* Hirashima, 1965 예조에꽃벌

*Andrena (Taeniandrena) ezoensis* Hirashima, 1965, J. Fac. Agr., Kyushu Univ., 13: 506 (Japan); Kim & Kim, 1983b: 71–72 (first Korean record); Tadauchi & Lee, 1992: 54 (Korea: Jeju); ESK & KSAE, 1994: 266 (Korea); Kim, 1996: 215 (Korea); Tadauchi *et al.*, 1997: 200 (Korea, in list).

*Distribution.* Korea (incl. Jeju), Japan, China, and Russian Far East.

### Subgenus *Trachandrena* Robertson, 1902

*Trachandrena* Robertson, 1902, Trans. Amer. ent. Soc., 28: 187–189. Type-species: *Andrena rugosa* Robertson, 1891, by original designation.

#### *Andrena (Trachandrena) haemorrhhoa japonibia* Hirashima, 1957 주름허리에꽃벌

*Andrena (Trachandrena) haemorrhhoa japonibia* Hirashima, 1957, Mushi, 30: 53 (Japan); Kim & Kim, 1983b: 72 (first Korean record); Tadauchi & Lee, 1992: 56 (Korea); Kim, 1996: 215 (Korea); Tadauchi *et al.*, 1997: 197–198 (Korea).

*Andrena (Taeniandrena) haemorrhhoa japonibia*: ESK & KSAE, 1994: 266 (Korea).

*Andrena (Trachandrena) foveopunctata*: Kim & Kim, 1983a: 7 ; Tadauchi *et al.*, 1997: 200 (Korea, in list). (nec Alfken, misidentification).

*Distribution.* Korea (incl. Jeju), Japan, China, and Russian Far East.

## Subfamily Panuraginae 애꽃벌불이亞科

### Tribe Panurigini 애꽃벌불이族

#### Genus *Panurginus* Nylander, 1848 애꽃벌불이屬

*Panurginus* Nylander, 1848, Notiser ur Sällskapet pro Fauna et Flora Fennica Forbandlingar 1: 223. Type-species: *Panurginus niger* Nylander, 1848, monobasic.

#### *Panurginus crawfordi* Cockerell, 1914 애꽃벌불이 (북지애꽃벌)

*Panurginus crawfordi* Cockerell, 1914, Ann. Mag. Nat. Hist., (8), 13: 279 (Japan); Kim, 1970: 672, 825 (first Korean record); Tadauchi & Lee, 1992: 56 (Korea); ESK & KSAE, 1994: 266 (Korea).

*Distribution.* Korea (incl. Jejudo), Japan, and Russian Far East.

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